

REMARKS

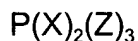
A. Status of the Claims

Claims 1 through 20 are currently pending. Reconsideration of the rejection of these claims is respectfully requested in view of the comments provided below.

B. Rejection Under 35 U.S.C. §103

Reconsideration is respectfully requested of the rejection of claims 1-9 under 35 U.S.C. §103 as being obvious in view of the combined teachings of Ghosez et al. (Tetrahedron, 1998) and Wieland et al. (Liebigs. Ann. Chem., 1985).

Claim 1, from which claims 2-9 depend, is directed to a process for preparing an α -haloenamine which comprises combining a tertiary amide with a pentavalent phosphorous halide in a solvent to form an α -haloiminium salt and converting the α -haloiminium salt to the α -haloenamine with a base. Notably, the claim calls for the pentavalent phosphorous halide to have the formula



wherein each X is independently a halogen atom and each Z is independently a halogen atom or a carbon atom which is part of a substituted or unsubstituted hydrocarbyl radical. Accordingly, the claim is directed to a process which employs a pentavalent phosphorous halide having five separate atoms or substituents attached to the phosphorous atom therein, a phosphorous pentahalide (e.g., pentabromide or pentachloride) being particularly preferred in some embodiments.

The Office asserts that Ghosez et al. teach a similar process of making a haloiminium salt as claimed, the only difference being the use of $COCl_2$ or $POCl_3$ as a chlorinating agent, as opposed to pentavalent phosphorous. However, the Office

further asserts that Wieland et al. teach a chlorination process of an amide, wherein the equivalence of COCl_2 and PCl_5 is expressly taught.

Contrary to the Office's assertion, Applicants respectfully submit Wieland et al. do not disclose or suggest the equivalency of COCl_2 and PCl_5 . In fact, in view of the translated portion of the Experimental section on page 2183 (the third and fourth paragraphs) submitted herewith, which appears to discuss the preparation of compounds 16 and 19 using PCl_5 and COCl_2 , respectively, Applicants respectfully submit that Wieland et al. suggest these two reagents are not equivalent.¹ Specifically, it is to be noted that the conversion of compound 15 to compound 16 appears to have been achieved using PCl_5 at room temperature, while the conversion of compound 18 to compound 19 appears to have been achieved using COCl_2 at 40-60°C. Accordingly, heat had to be applied to accomplish the conversion when using COCl_2 . Furthermore, the yield of the reaction using PCl_5 was reported as 93%, while the yield for the reaction using COCl_2 was not reported.

In view of the foregoing, Applicants respectfully submit it is improper to conclude from the teachings of Wieland et al. that COCl_2 and PCl_5 are equivalent. Clearly, the reactivity of these two reagents is not the same, given that the reaction using the former had to be heated while the reaction using the latter appears to have proceeded at room temperature. Furthermore, in view of the failure by Wieland et al. to report a yield for the reaction using COCl_2 , it cannot even be fairly stated that the results achieved using these two reagents were the same.

Applicants also point out that Wieland et al. is not directed to the preparation of an α -haloamine, and Ghosez et al. make no reference to the use of a pentavalent phosphorous halide as claimed. As a result, Applicants respectfully submit that one skilled in the art would not be led to combine these two references, given that there is

¹ In the absence of a translation being provided by the Office, Applicants had this portion of the Wieland et al. text translated by an independent service. This translation is enclosed herewith as Exhibit A.

no teaching, suggestion or motivation, either explicitly or implicitly in Ghosez et al. and Wieland et al., or in the knowledge generally available to one of ordinary skill in the art, to do so. Applicants therefore respectfully submit the Office has failed to establish that claims 1-9 are *prima facie* obvious in view of the cited references.

In view of the foregoing, Applicants respectfully submit claim 1 is nonobvious in view of the combined teachings of Ghosez et al. and Wieland et al. In as much as claims 2-9 depend from claim 1, it is respectfully submitted that these claims are patentable over the cited combination of references for the same reasons as those set forth with respect to claim 1.

C. Double Patenting Rejection

Claims 10-20 have been rejected under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of U.S. Patent No. 6,677,487. In response thereto, Applicants enclose with this Letter a Terminal Disclaimer in accordance with 37 C.F.R. 1.130(b) and 37 C.F.R. 1.321(c).

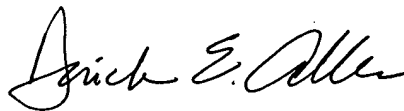
In view of the foregoing, Applicants respectfully submit that the obviousness-type double patenting rejection of claims 10-20 has been obviated and, therefore, respectfully request that this rejection be withdrawn.

CONCLUSION

In view of the foregoing, favorable reconsideration and allowance of all pending claims is requested.

* Enclosed is a check for \$220.00, for a one month extension of time for responding to the present Office action (to and including August 30, 2004) and for the required Terminal Disclaimer fee. The Commissioner is hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No. 19-1345.

Respectfully submitted,



Derick E. Allen, Reg. No. 43,468
SENNIGER, POWERS, LEAVITT & ROEDEL
One Metropolitan Square, 16th Floor
St. Louis, Missouri 63102
(314) 231-5400

DEA/skd
* Enclosures



**international
language
center**

1416 South Big Bend Blvd.
St. Louis, MO 63117
Phone: (314) 647-8888
Fax: (314) 647-8889

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(1-chloroalkane) iminium-chloride **3**, **4**, **19** from the carboxamides **1**, **2**, **18** (Tab. 3). – *General Specification*: Add 1 mol of the carboxamide **1**, **2**, **18** diluted with a solvent to 105.0 g (1.06 mol) phosgene in 400 ml absol. benzene and 80 ml absol. petroleum ether (40-60°C), within 2 hours and while cooling, stirring and under moisture exclusion (calcium chloride drying tower). Leave standing for some time at room temperature, evacuate under moisture exclusion using a reversing frit, wash with absol. petroleum ether, and remove adhering solvent remnants in vacuum.

N-(1-chloro-2,2-dimethyl propylidene)-*N*-isopropyl-2-propanaminium chloride (16). To 52.06 g (0.25 mol) phosphorpentachloride in 100 ml. absol. dichloromethane, a solution of 46.35 g (0.25 mol) [illegible – 15?] in 150 ml. absol. dichloromethane is added gradually, under moisture exclusion and while stirring at room temperature. After 14 hours of reaction at room temperature, the solvent and the largest portion of the phosphoryl chloride is removed in vacuum. The remnant is mixed with 200 ml absol. ether, evacuated with the reversing frit, and rewashd with 200 ml. ether; Yield 55.80 g (93%), melting pt. 184° C (decomposition). – ¹H-NMR (CDCl₃): δ = 1.66 – 1.83 (m, 21 H, CH₃), 4.66 – 5.66 (m, 2 H, CH).

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